

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Wednesday, October 21, 2015 10:50 AM
To: Hedman, Susan
Cc: Dayne Walling; Kaplan, Robert
Subject: Re: EPA Task Force

Hello Dr. Headman and Mr. Kaplan,

I look forward to working with you all on the Task Force.

Kaplan, Robert

From: Kaplan, Robert
Sent: Wednesday, October 21, 2015 10:51 AM
To: 'Natasha Henderson'; Hedman, Susan
Cc: Dayne Walling
Subject: RE: EPA Task Force

Thanks very much for your message. We look forward to working with you as well. My contact information is below. Please feel free to contact me at any time.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Wednesday, October 21, 2015 10:50 AM
To: Hedman, Susan
Cc: Dayne Walling; Kaplan, Robert
Subject: Re: EPA Task Force

Hello Dr. Headman and Mr. Kaplan,

I look forward to working with you all on the Task Force.

Kaplan, Robert

From: Kaplan, Robert
Sent: Friday, October 23, 2015 1:16 PM
To: 'Natasha Henderson'
Subject: RE: EPA Task Force

Hello Natasha,

I'd like to touch base today if possible. Just a short call. Do you have time? My phone information is below.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Wednesday, October 21, 2015 10:50 AM
To: Hedman, Susan <hedman.susan@epa.gov>
Cc: Dayne Walling <dwalling@cityofflint.com>; Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Re: EPA Task Force

Hello Dr. Headman and Mr. Kaplan,

I look forward to working with you all on the Task Force.

Kaplan, Robert

From: Kaplan, Robert
Sent: Friday, November 06, 2015 2:02 PM
To: 'Natasha Henderson'
Subject: Corrosion control permit

Hello Natasha,

It was good to talk to you on Wednesday.

I hope you had a chance to talk to Jim Sygo/MDEQ, and that you have received MDEQ's permit, attached calculations, and cover letter. As we discussed, MDEQ had decided NOT to issue an amended permit – MDEQ's calculations attached to the permit take account of EPA's comments.

Please let me know if we can be of assistance.

- Bob

Kaplan, Robert

From: Kaplan, Robert
Sent: Tuesday, December 01, 2015 2:08 PM
To: 'Natasha Henderson'
Subject: Welcome back -

Hello Natasha,

I hope you didn't have to work your entire vacation week!

When you get a chance today, I'd like to get an update on the progress of feeding orthophosphate. My understanding from Mike Glasgow was the pumps were due to arrive, be installed, and the feeding would begin by the end of November.

Thanks,

Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Tuesday, December 01, 2015 2:39 PM
To: Kaplan, Robert
Subject: Re: Welcome back -

Hello Bob,

Tried giving you a call a few minutes ago but your Assistant said you were unavailable.

Corrosion control is near completion. The chemical feed pumps and phosphate chemical are on hand. Lab testing will start this week in an attempt to determine any possible negative consequences to the increased dosing.

Hope you had a great Holiday!

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Tue, Dec 1, 2015 at 3:07 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

I hope you didn't have to work your entire vacation week!

When you get a chance today, I'd like to get an update on the progress of feeding orthophosphate. My understanding from Mike Glasgow was the pumps were due to arrive, be installed, and the feeding would begin by the end of November.

Thanks,

Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Wednesday, December 02, 2015 8:06 AM
To: Kaplan, Robert
Subject: Re: Welcome back -

Thanks,

Natasha L. Henderson, City Administrator
 City of Flint, Michigan
 Flint Municipal Center
 1101 S. Saginaw St. Rm. 101
 Flint, MI 48502
 Phone: (810) 766-7346

On Dec 1, 2015 3:07 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

I hope you didn't have to work your entire vacation week!

When you get a chance today, I'd like to get an update on the progress of feeding orthophosphate. My understanding from Mike Glasgow was the pumps were due to arrive, be installed, and the feeding would begin by the end of November.

Thanks,

Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Wednesday, December 02, 2015 9:26 AM
To: 'Natasha Henderson'
Subject: RE: Welcome back -

Hello Natasha,

Any update on the pumps? I need to provide an update to the Task Force and others. Please advise. Thanks. -- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Wednesday, December 02, 2015 8:06 AM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Re: Welcome back -

Thanks,

Natasha L. Henderson, City Administrator
 City of Flint, Michigan
 Flint Municipal Center
 1101 S. Saginaw St. Rm. 101
 Flint, MI 48502
 Phone: (810) 766-7346

On Dec 1, 2015 3:07 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

I hope you didn't have to work your entire vacation week!

When you get a chance today, I'd like to get an update on the progress of feeding orthophosphate. My understanding from Mike Glasgow was the pumps were due to arrive, be installed, and the feeding would begin by the end of November.

Thanks,

Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Google Calendar <calendar-notification@google.com> on behalf of Natasha Henderson <nhenderson@cityofflint.com>
Sent: Thursday, December 03, 2015 12:27 PM
To: Kaplan, Robert
Subject: Accepted: Flint Discussion - Please call (b) (6) @ Wed Dec 9, 2015 12pm - 1pm (nhenderson@cityofflint.com)
Attachments: invite.ics

Natasha Henderson has accepted this invitation.

Flint Discussion - Please call (b) (6)

When Wed Dec 9, 2015 12pm – 1pm Eastern Time

Where Region 5 - Robert Kaplan's Office ([map](#))

Calendar nhenderson@cityofflint.com

Who

- Kaplan, Robert - organizer
- Natasha Henderson - creator
- mglasgow@cityofflint.com
- Schock, Michael
- Lytle, Darren
- Shaler, Karen (DEQ)
- sygoj@michigan.gov
- Poy, Thomas
- Kempic, Jeffrey
- Deltoral, Miguel

Invitation from [Google Calendar](#)

You are receiving this courtesy email at the account kaplan.robert@epa.gov because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at <https://www.google.com/calendar/> and control your notification settings for your entire calendar.

Forwarding this invitation could allow any recipient to modify your RSVP response. [Learn More.](#)

Kaplan, Robert

From: Kaplan, Robert
Sent: Monday, December 07, 2015 11:18 AM
To: 'Natasha Henderson'
Subject: Update on feeding orthophosphate?

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Monday, December 07, 2015 1:40 PM
To: Kaplan, Robert
Cc: Michael Glasgow
Subject: Re: Update on feeding orthophosphate?

Not feeding yet, due to not receiving the spill-containment and electrical wiring change that is complete now. This all must be verified before we can start feeding.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Mon, Dec 7, 2015 at 12:18 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Tuesday, December 08, 2015 1:59 PM
To: 'Natasha Henderson'
Cc: Michael Glasgow
Subject: RE: Update on feeding orthophosphate?

Thanks for the update.

Any ETA? Do you think this week? Tomorrow? I know there is a lot going on. It would be very helpful to get an update on your schedule as soon as you can provide one.

Best wishes,

Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Monday, December 07, 2015 1:40 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: Update on feeding orthophosphate?

Not feeding yet, due to not receiving the spill-containment and electrical wiring change that is complete now. This all must be verified before we can start feeding.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Mon, Dec 7, 2015 at 12:18 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Wednesday, December 09, 2015 4:15 PM
To: Kaplan, Robert; Sygo, Jim (DEQ)
Cc: Michael Glasgow
Subject: RE: Update on feeding orthophosphate?

Hello Bob,

We are feeding phosphate as of 1:45 p.m. today. Just wanted to make sure you know, as we did not have this information during the conference call.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Dec 8, 2015 2:59 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Thanks for the update.

Any ETA? Do you think this week? Tomorrow? I know there is a lot going on. It would be very helpful to get an update on your schedule as soon as you can provide one.

Best wishes,

Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Monday, December 07, 2015 1:40 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: Update on feeding orthophosphate?

Not feeding yet, due to not receiving the spill-containment and electrical wiring change that is complete now. This all must be verified before we can start feeding.

Thanks,

Natasha L. Henderson, City Administrator

City of Flint, Michigan

1101 S. Saginaw St.

Flint, MI 48502

Email: nhenderson@cityofflint.com

Phone: (810) 237-2057

www.cityofflint.com

On Mon, Dec 7, 2015 at 12:18 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Wednesday, December 09, 2015 4:18 PM
To: 'Natasha Henderson'; Sygo, Jim (DEQ)
Cc: Michael Glasgow
Subject: RE: Update on feeding orthophosphate?

Natasha, thanks very much for letting us know. That's good news. Congrats to you and your team for making this happen.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Wednesday, December 09, 2015 4:15 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>; Sygo, Jim (DEQ) <SygoJ@michigan.gov>
Cc: Michael Glasgow <mglasgow@cityofflint.com>
Subject: RE: Update on feeding orthophosphate?

Hello Bob,

We are feeding phosphate as of 1:45 p.m. today. Just wanted to make sure you know, as we did not have this information during the conference call.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Dec 8, 2015 2:59 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Thanks for the update.

Any ETA? Do you think this week? Tomorrow? I know there is a lot going on. It would be very helpful to get an update on your schedule as soon as you can provide one.

Best wishes,

Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]

Sent: Monday, December 07, 2015 1:40 PM

To: Kaplan, Robert <kaplan.robert@epa.gov>

Cc: Michael Glasgow <mglasgow@cityofflint.com>

Subject: Re: Update on feeding orthophosphate?

Not feeding yet, due to not receiving the spill-containment and electrical wiring change that is complete now. This all must be verified before we can start feeding.

Thanks,

Natasha L. Henderson, City Administrator

City of Flint, Michigan

1101 S. Saginaw St.

Flint, MI 48502

Email: nhenderson@cityofflint.com

Phone: (810) 237-2057

www.cityofflint.com

On Mon, Dec 7, 2015 at 12:18 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Is Flint feeding corrosion control yet? I know that Mike said he "jar testing" was ongoing as of last week. It would be helpful to get an update. Thanks very much!

- bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Google Calendar <calendar-notification@google.com> on behalf of Natasha Henderson <nhenderson@cityofflint.com>
Sent: Tuesday, December 15, 2015 9:02 AM
To: Kaplan, Robert
Subject: Accepted: Flint Video Conference/Conference Call - Please call (b) (6) @ Tue Dec 15, 2015 11am - 12:30pm (nhenderson@cityofflint.com)
Attachments: invite.ics

Natasha Henderson has accepted this invitation.

Flint Video Conference/Conference Call - Please call (b) (6)

The proposed video conference will start at 10am in room 1932

For those that are not available via video, please call:

(b) (6)

When Tue Dec 15, 2015 11am – 12:30pm Eastern Time

Where Room 1932 ([map](#))

Calendar nhenderson@cityofflint.com

Who

- Kaplan, Robert - organizer
- Natasha Henderson - creator
- Kempic, Jeffrey
- skammer@cityofflint.com
- Henry, Timothy
- Poy, Thomas
- Lytle, Darren
- jwgreen@lan-inc.com
- Shaler, Karen (DEQ)
- Deltoral, Miguel
- Schock, Michael
- sygoj@michigan.gov

Invitation from [Google Calendar](#)

You are receiving this courtesy email at the account kaplan.robert@epa.gov because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at <https://www.google.com/calendar/> and control your notification settings for your entire calendar.

Forwarding this invitation could allow any recipient to modify your RSVP response. [Learn More](#)

Kaplan, Robert

From: Kaplan, Robert
Sent: Wednesday, December 16, 2015 4:47 PM
To: 'Natasha Henderson'
Cc: 'Sygo, Jim (DEQ)'
Subject: EPA Flint Drinking Water Task Force Recommendations -- Performance Evaluation Period
Attachments: performance evaluation period 12-16-15 final

Natasha,

Attached please find the EPA Flint Drinking Water Task Force Recommendations for a Performance Evaluation Period.

As we discussed on December 11 and December 15, it is important to gain operational experience at the Flint Plant prior to distribution of KWA-sourced water. We have informally referred to this as a "shakedown" period for ensuring a safe and appropriate transition to the new water source.

Please feel free to call me if you have any questions. We are pleased to continue to work together.

- Bob

Cc: Jim Sygo, MDEQ

Flint Drinking Water Task Force (FTF 15-5)

Task Force Recommendations Regarding Flint Drinking Water Treatment Performance Evaluation

For protection of public health, Flint must avoid significant distribution system issues similar to those experienced following the source water switch to the Flint River and subsequent operation of Flint's water treatment plant.

The EPA Flint Safe Drinking Water Task Force recommends that Flint develop and implement a Performance Assessment Plan prior to distribution of water from the Karegnondi Water Authority (KWA) source. The plan must address how the treatment plant will be brought on-line, and how finished drinking water will be introduced to the distribution system. This plan is particularly important given the City has no experience treating the KWA-supplied water, and is operating a distribution system that is still recovering from the past upset.

Flint should work with its consultant and MDEQ to establish objective water quality and plant performance criteria. The plan must include operation of Flint's drinking water treatment plant for a reasonable period of time to treat KWA-supplied water until:

- (1) the treated water meets finished water quality goals;
- (2) the finished water quality is consistently maintained;
- (3) potential plant operational and mechanical start-up issues are identified and addressed; and
- (4) water plant operations staff are proficient in treating the new source.

KWA water should not be distributed to the public until these conditions are satisfied.

During this performance evaluation period, Flint must distribute to the public water from an alternate source. As water is already received from Detroit (Great Lakes Water Authority), that is an obvious and appropriate choice for that interim period. The length of the performance evaluation period will be dependent on the amount of time it takes for the treatment plant to consistently and reliably meet the performance criteria.

Because of similarities in source water and in treatment processes with Detroit's Huron plant, the Flint water plant will likely be configured to produce treated water with similar quality to that of the water currently being received from Detroit. Continued use of Detroit water during the performance evaluation period will minimize the risk of distribution system upsets.

We encourage Flint and the City's consultant to perform a number of assessments prior to the completion of the KWA pipeline and availability of the Lake Huron source water to expedite the plant transition period. For example, the planned bench-scale jar tests will be helpful in establishing full-scale treatment plant operating parameters. Assessment of corrosion control treatment using Detroit source water with lead pipe loop rigs in advance of switching to the KWA source may also be transferrable to the KWA source water. Pipe loops rigs operated during the performance assessment period will help predict whether lead release will be an issue when the new plant goes on line. EPA will work with the City to set up pipe loops at the Flint treatment plant.

Flint Drinking Water Task Force (FTF 15-5)

Task Force Recommendations Regarding Flint Drinking Water Treatment Performance Evaluation

For protection of public health, Flint must avoid significant distribution system issues similar to those experienced following the source water switch to the Flint River and subsequent operation of Flint's water treatment plant.

The EPA Flint Safe Drinking Water Task Force recommends that Flint develop and implement a Performance Assessment Plan prior to distribution of water from the Karegnondi Water Authority (KWA) source. The plan must address how the treatment plant will be brought on-line, and how finished drinking water will be introduced to the distribution system. This plan is particularly important given the City has no experience treating the KWA-supplied water, and is operating a distribution system that is still recovering from the past upset.

Flint should work with its consultant and MDEQ to establish objective water quality and plant performance criteria. The plan must include operation of Flint's drinking water treatment plant for a reasonable period of time to treat KWA-supplied water until:

- (1) the treated water meets finished water quality goals;
- (2) the finished water quality is consistently maintained;
- (3) potential plant operational and mechanical start-up issues are identified and addressed; and
- (4) water plant operations staff are proficient in treating the new source.

KWA water should not be distributed to the public until these conditions are satisfied.

During this performance evaluation period, Flint must distribute to the public water from an alternate source. As water is already received from Detroit (Great Lakes Water Authority), that is an obvious and appropriate choice for that interim period. The length of the performance evaluation period will be dependent on the amount of time it takes for the treatment plant to consistently and reliably meet the performance criteria.

Because of similarities in source water and in treatment processes with Detroit's Huron plant, the Flint water plant will likely be configured to produce treated water with similar quality to that of the water currently being received from Detroit. Continued use of Detroit water during the performance evaluation period will minimize the risk of distribution system upsets.

We encourage Flint and the City's consultant to perform a number of assessments prior to the completion of the KWA pipeline and availability of the Lake Huron source water to expedite the plant transition period. For example, the planned bench-scale jar tests will be helpful in establishing full-scale treatment plant operating parameters. Assessment of corrosion control treatment using Detroit source water with lead pipe loop rigs in advance of switching to the KWA source may also be transferrable to the KWA source water. Pipe loops rigs operated during the performance assessment period will help predict whether lead release will be an issue when the new plant goes on line. EPA will work with the City to set up pipe loops at the Flint treatment plant.

Kaplan, Robert

From: Kaplan, Robert
Sent: Thursday, January 07, 2016 1:43 PM
To: 'Natasha Henderson'
Cc: 'Sygo, Jim (DEQ)'
Subject: EPA Flint Task Force Concerns about excavation
Attachments: EPA Task Force Recommendations Final Draft December 22 2015 V4.pdf

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

Flint Drinking Water Task Force (FTF-3)

Lead in Drinking Water

Preliminary Assessment

U.S. EPA Flint Task Force

12/22/2015

DRAFT

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

1.0 Overview

The United States Environmental Protection Agency (EPA) has offered, and the City of Flint has accepted, the assistance of EPA experts on corrosion and corrosion control. This preliminary assessment is intended to document the activities and funding necessary to enable EPA to provide advice and support to the City of Flint in optimizing and maintaining corrosion control treatment under current water quality conditions as well as during and after the upcoming transition to the Karegnondi Water Authority (KWA) pipeline.

[Note: There are many other communities scheduled to transition from their current water sources to the KWA pipeline. Although the source water will be the same for the City of Flint and all communities transitioning to the KWA pipeline source, the intended treatment planned for these communities may differ and the studies undertaken for the City of Flint may or may not be suitable for use by the other communities. It is strongly recommended that the EPA Task Force discuss with the Michigan Department of Environmental Management (MDEQ) the importance of actively working with these additional communities to ensure that proper studies on optimizing and maintaining OCCT are undertaken prior to putting the new KWA source in service for all affected communities. If such studies are not currently underway, they should be initiated as soon as possible.]

2.0 Information Request

In order to provide effective advice and assistance, the EPA Task Force should request the following information from the City of Flint.

2.1 Current inventory of homes with service line information in excel or similar format.

Pipe loops are corrosion control treatment assessment tools that enable evaluation of the effects of potential water quality changes and different levels of orthophosphate treatment on the existing pipe scales in order to select the most effective treatment before the treatment is applied on a city-wide basis. The pipe loops utilize lead service lines that are actively in service and carefully extracted so that the treatment assessment is conducted with pipes that represent conditions within the distribution system. As it would not be possible to perform service line extractions in the winter without significantly altering or dislodging the scales within the pipes, the identification and extraction of lead service lines should be given the highest priority to ensure that a sufficient number of lead pipes can be identified and extracted as soon as possible. In order to identify suitable homes with lead lines, the EPA Task Force will need current records on lead service line locations to be provided as soon as possible so that sampling can be coordinated and conducted to verify the presence of lead lines.

To minimize the need for excavation, homes with the longest lead service lines should be chosen so that multiple segments can be harvested from each lead line. The lead lines would typically be the longest where the water main is located across the street from the home and the home is set back on the property with respect to the street. An estimated 20 lead pipe segments should be carefully extracted and handled using ORD-specified procedures for use in constructing pipe loops at the treatment plant.

As the scales within the service lines have been subject to significant and iterative water quality changes in a relatively short period of time, it is also necessary to extract additional lead and non-lead portions of service lines to assess the current condition of the scales within the service lines.

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

2.2 All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.

Studies have shown that homes served by lead service lines generally have much higher lead levels than homes without lead service lines. As it is anticipated that the City of Flint's service line records will be incomplete, the lead-in-water testing data is a supplemental tool that can be mapped to identify areas of the city that may have higher lead-in-water levels which would indicate the presence of lead service lines. This information will help the EPA Task Force in the identification and extraction of lead service lines for constructing the pipe loops and in identification of areas to test the progress of corrosion control.

2.3 Identification of areas in Flint with elevated blood lead levels.

Similar to the lead-in-water testing, identification of areas (e.g., zip codes, neighborhoods) where elevated blood lead levels are found can provide additional data which would indicate the presence of lead service lines for the identification of areas to test the progress of corrosion control.

2.4 Addresses of homes that have had water service interruptions or street disturbances (e.g., water main breaks, road/sidewalk construction, etc.) within the last year.

Streets where there have been potential physical disturbances and homes where the water service has been interrupted should be prioritized for evaluation for the presence of lead service lines as the disturbances can release very high lead and prolonged stagnation can affect the stability of the scales within the pipes.

2.5 Addresses of currently unoccupied homes.

Similar to homes where the water service has been interrupted, homes that are unoccupied should be prioritized for evaluation for the presence of lead service lines as these homes may pose a significant risk to incoming occupants if the home has a lead service line. Recently unoccupied homes also may provide important evaluation locations of water usage impacts on scale stability and lead release/exposure.

2.6 Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

In addition to corrosion control treatment optimization, the City of Flint must simultaneously comply with all other applicable National Primary Drinking Water Regulations (NPDWRs). A system-wide assessment of the water quality will provide information necessary to ensure that any potential issues with other NPDWRs can be identified and resolved. Information regarding the water quality in the distribution system is necessary to evaluate the stability of the water quality parameters throughout the distribution system, and to detect locations that may have the highest risk of lead release, TTHM formation, or the presence of microbial contamination.

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

3.0 Immediate Tasks and Timeline

The following tasks should be undertaken immediately (November/December 2015)

- 3.1 Determination on EPA funding commitment(s) (DRA).
- 3.2 Discussion with Central Regional Laboratory (CRL) regarding laboratory capabilities and support (GWDWB, ORD).
- 3.3 Development of EPA QAPPs encompassing the following activities (GWDWB, ORD, Others*):
 - 3.3.1 Verification of presence of lead service lines*;
 - 3.3.2 Pipe rig construction, operation, and maintenance;
 - 3.3.3 Treatment assessment monitoring;
 - 3.3.4 Evaluation of lead reservoirs within service lines; and
 - 3.3.5 Evaluation of scale degradation due to stagnation events at unoccupied homes and water shut-offs*.

*If these activities are undertaken by one or more of the local partners, QAPP development should be part of the agreement.
- 3.4 Identification of local partners that can coordinate with the EPA Flint Task Force, MDEQ, and the City of Flint, and establishment of agreements to provide assistance on field and other activities (ORD).
 [Potential local partners who have expressed strong interest and willingness to collaborate with EPA include Wayne State University, University of Michigan Flint, Michigan State University, Hurley Medical Center, and Genesee County Health Department.]
- 3.5 Outreach and education – specifics to be determined.
 [Potential local partners Hurley and WSU have asked ORD directly if EPA can provide training/education for their staff on lead in water occurrence, sampling for lead, and corrosion/corrosion control treatment]
- 3.6 Assessment of information from 2.1 to verify the presence of a sufficient number of accessible homes with lead service lines that can be extracted for construction of pipe loops and to evaluate the current state and stability of the scales within the lead and non-lead portions of service lines (TBD).
- 3.7 Extraction of approximately twenty lead line segments with active water for construction of pipe loops, and six additional full service lines with different pipe material (two with lead and galvanized iron, two with lead and copper, and two with lead and plastic segments) for analyzing the lead reservoirs within the lead and non-lead segments of the service lines (TBD).
- 3.8 Risk evaluation and communication on the potential risk from physical disturbances to lead service lines, reoccupation of unoccupied homes and re-establishment of water service following water shut-offs (TBD).

**Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015**

4.0 Funding Needs (To Be Determined)

5.0 Optimization and Maintenance of Optimal Corrosion Control Treatment

The narrative below describes the scope of work to be undertaken in providing assistance to the City of Flint and is contingent on adequate funding being provided.

5.1 Lead Service Line Detection Methodology Development

Verification of the presence of lead service lines is necessary for identification and extraction of lead service lines, sampling for treatment assessment, Lead and Copper Rule compliance sampling, risk evaluation and implementation of a lead service line replacement program. Blood lead level (BLL) or other lead-related health evaluations also need to be able to identify all lead sources for blood-tested individuals to prioritize risk locations and mitigation strategies. This methodology development is designed to determine if a simple water sampling protocol can give a convenient means to verify with some level of confidence, whether or not a residence has a lead service line, through relatively non-intrusive water sampling. Experience with other utilities has shown that paper records may either under or overestimate the presence of lead service lines.

The strategy to be employed is based on published protocols with improvements being researched by Polytechnique Montreal (Michele Prevost, Elise Deshommes, Clement Cartier). This requires staffing for coordination with Flint paper records, resident contact, plumbing mapping, field sampling (TBD, but estimated at 20 locations with no LSLs for “control” purposes, and 50 locations believed to have LSL for validation. Development of this protocol could involve re-sampling to test techniques, and could utilize one or more Palintest electrochemical analyzers after validation vs. ICP-MS. EPA-ORD has one Palintest analyzer which can be used. Field personnel would work closely with R5 CRL to test the limits of analytical performance of the Palintest analyzer.

[Note: Verification of the locations of lead service lines for compliance sampling and for corrosion control treatment assessment is a best practice for all systems.]

5.2 Corrosion Control Treatment Optimization Evaluations

The corrosion control treatment optimization evaluations are necessarily separated into two stages. The first stage is intended to optimize corrosion control treatment with the current water source and water quality conditions. The second stage is designed to prepare for the transition to the new water source (KWA Pipeline) and water quality conditions, and to ensure that the City of Flint is able to simultaneously comply with all National Primary Drinking Water Regulations following the transition to the new source.

5.2.1 Short-Term (Current) Lead Release Optimization Evaluation. A lead pipe rig system will be constructed at the Flint water treatment plant with exhumed lead pipes, carefully collected and installed into the pipe rig (see example pipe rig schematic in appendix). EPA-ORD will provide technical assistance in the rig design and construction, as well as the design provisions for chemical additions. One to two people will be required to be on-site to perform periodic chemical analyses and operate and maintain the pipe rig system, as well as to troubleshoot/repair any problems and to collect samples. Laboratory

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

instruments for pH and colorimetric tests (chlorine residual, orthophosphate) will be needed on site. It is anticipated that the design will include a “control” loop and loops with possibly 3-4 different dosages, in duplicate. The estimated sampling frequency would be at least three times per week, using ICP for metals and ICP-MS for lead on each sample, with one complete characterization sample before each stagnation period. Filtration apparatus will also be needed.

5.2.2 Simultaneous Compliance Optimization Pilot Testing Prior to Flint Water Plant Treatment of KWA Water. This effort will necessarily be more expansive than the short-term evaluation. The same control pipes would carry over, but new pipes would need to be stabilized with the current water. Upstream of the lead pipe rig, there would need to be a series of jar tests or a small pilot plant established to optimize coagulation, softening (if necessary), filtration and disinfection processes to meet disinfection byproduct (DBP) limits and microbial inactivation requirements. Investigations are also needed to assess the potential impacts of different possible treated Lake Huron water qualities on chlorine, biofilm growth, water age, microbial pathogens such as *Legionella*, phosphate demand and scaling potential. Pilot evaluations could be done on different unit processes using anticipated Lake Huron water, using university-run pilot plants, shipped or trucked water, etc. Some pilot evaluation analyses could be done on-site with portable analytical instrumentation as is typical. When a final water quality target is determined, the target finished water would become the source water to feed into the lead (and metal) pipe rigs, and thereafter the optimization of phosphate dosing would be done on the stabilized exhumed lead pipes in the pipe rigs. A reservoir may need to be constructed to hold processed simulated Lake Huron treated water produced by the pilot plant and fed to the pipe rigs. This evaluation must be started as soon as possible to allow sufficient time for reliable results to avoid having to conduct full-scale testing on water delivered into the distribution system that could impact Flint consumers after the switch to the KWA pipeline is made.

[Note: Evaluation of Corrosion control treatment optimization using a pipe rig is a best practice for all systems changing sources/treatment.]

5.3 Lead Source/Release Diagnostic Evaluation

While the data collected from the pipe loops can provide information on the relative effectiveness of various treatment schemes, conditions at the plant are not the same as within the distribution system. Continued monitoring of lead levels at high risk sites throughout the distribution system is needed to make any necessary adjustments based on actual conditions within the distribution system. EPA estimates that approximately 45 homes will need to be identified for ongoing sampling to inform the treatment optimization process. (15 with lead & copper service line portions, 15 with lead & galvanized iron service lines and if available, 15 with lead and plastic service line portions). This evaluation is necessary for determining what the relative contributions of lead are from different plumbing sources in order to assure optimization of lead and other metal release from the service lines and premise plumbing. Two sampling rounds are the minimum expected for profile sampling which will utilize small volume samples through faucet and sink area and larger (one-liter) samples thereafter.

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

Sampling would involve 15 sites for each combination of plumbing materials (total of 45 sites), with an anticipated 10-15 sequential samples per site for metals per sampling event. Additional samples will be collected and analyzed to characterize the water quality and the sequential samples will be analyzed for Pb, Cu, Fe, Zn, and Al. An experienced plumber or researcher will be needed to map the plumbing at each site, field personnel will be needed to collect and ship samples, and a data manager will be needed to manage the data. If dissolved vs. total metals are desired in the analyses, an additional person with field filtration skills will be needed, in addition to the lab supplies. If meters, brass or galvanized pipe are found to be a significant source of lead, those devices should be included in the pipe rigs.

[Note: Monitoring of lead levels at high risk sites throughout the distribution system to make any necessary corrosion control treatment adjustments is a best practice for all systems changing sources/treatment.]

5.4 Pipe analyses for long-term treatment assessment and mechanisms of lead and other metals release

Optimization of corrosion control treatment requires specialized knowledge on scale chemistry as well as specialized equipment and equipment operating skills. The timeline for activities related to evaluating the progress in optimizing corrosion control treatment following the transition to the KWA pipeline source will extend beyond the current fiscal year and likely well into FY 2017. The necessary resources and expertise must continue to be made available to the Task Force for the expected duration of the project in order to ensure a successful outcome which would enable the City of Flint to simultaneously comply with all NPDWRs following the transition to the KWA pipeline.

[Note: Long-term evaluation of corrosion control treatment effectiveness is a best practice for all systems.]

6.0 Additional Recommendations and Needs

[Note: The additional recommendations in the Section 6.1 and 6.2 are advisable for all systems with lead service lines. The recommendation in Section 6.3 is specific to Flint.]

6.1 Impact of Water Use/House Occupancy on Stability and Lead Release from Lead and Other Premise Piping.

There are a large number of unoccupied homes in Flint. Homes which have been unoccupied for an extended period of time can pose a greater risk to incoming residents due to the stagnation of water within the plumbing over an extended period of time which can destabilize the scales within the plumbing and release high lead levels into the water. If access can be facilitated by the City of Flint or other organizations involved with housing, sampling will be conducted at 10-20 vacant or recently occupied homes in conjunction with a flushing program to assess how long it takes for increased water usage to improve the effectiveness of the corrosion control treatment for these homes. Sequential sampling profiles would be done for metals as well as chlorine residuals for each home. Flushing for different times would be tested and evaluated with

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

repeated profile sampling to see if there is any improvement in lowering lead levels with increased water use.

6.2 Protocol for Exposure Estimation Sampling for Health-Related Evaluations (Premise & Building Plumbing).

This protocol development would compare various potential options for sampling to estimate the cumulative metal exposure from the drinking water in premise plumbing or schools.

Comparisons would be made with manual or automated proportional sampling, tap POU units that could log water use and be disassembled and digested for metal content, and random daytime sampling protocols. Different types of POU-suitable filtration apparatus would be tested to see if designs would permit quantitative separation of dissolved versus particulate lead and other metals. Support would be needed for setting up and operating test systems, analyzing virgin and exposed filter/device materials with accumulated metals, building and installation of proportional samplers or development of protocol for resident-collected samples, rapid turn-around Lead and other water analyses of test exposure water fed into experimental systems.

6.3 Risk communication on lead service lines

Request OEJ support/assistance for the development and dissemination of risk communication material on lead service lines, including the potential risk from physical disturbances to lead service lines and lead reservoirs in other pipes downstream of lead service lines.

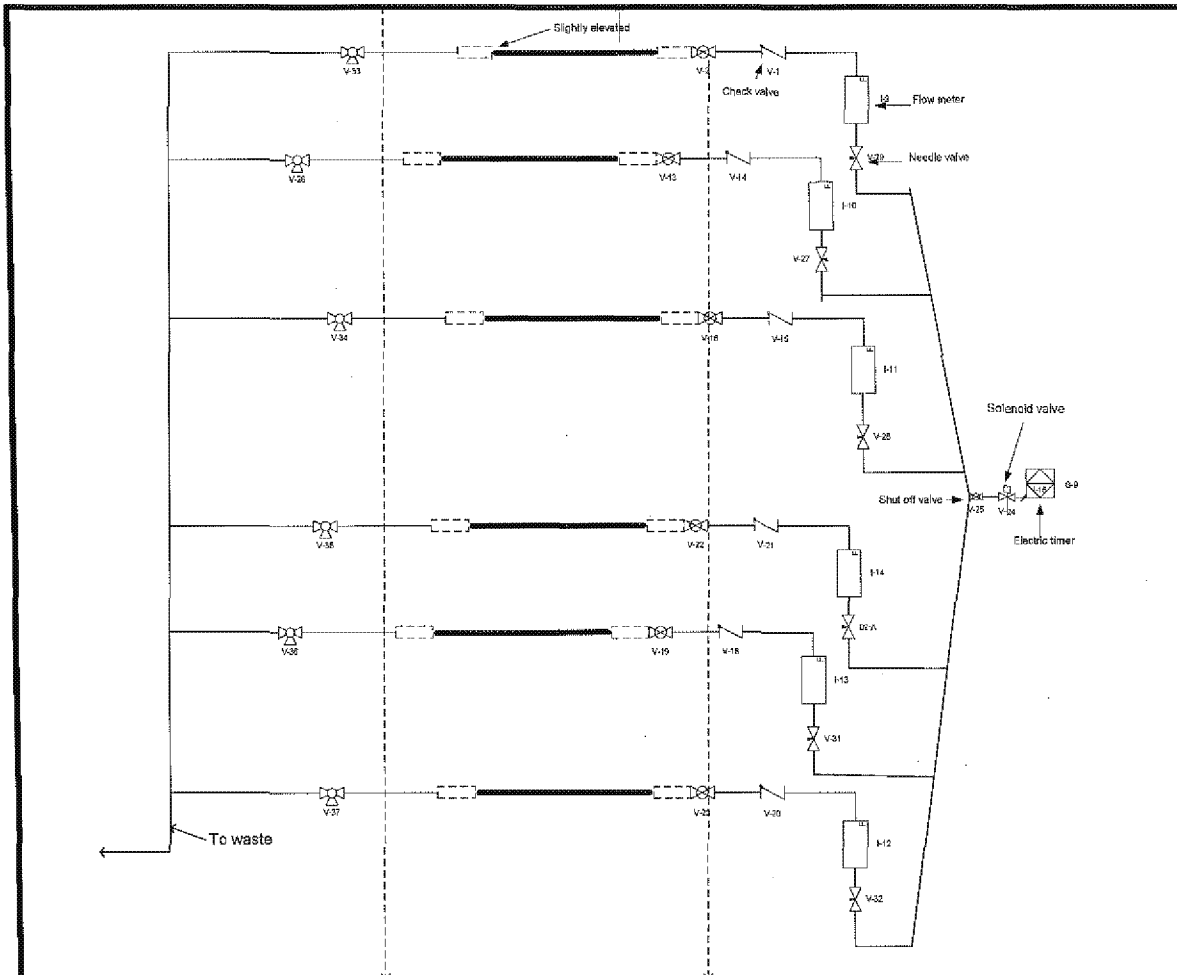
7.0 Timeline

The proposed activities are contingent upon available funding. As such, it is not possible at this time to develop a meaningful timeline, with the exception of the activities in Section 2.0 and some of the activities in Section 3.0 which are discussed in those sections. Once funding is secured a detailed timeline will be developed that incorporates both funded and unfunded activities. A Task Force member will be identified as the lead person responsible for ensuring the completion of each activity or group of activities to ensure that the work is completed in accordance with the timeline.

Flint Drinking Water Task Force (FTF-3)
Preliminary Assessment – Revised Draft December 22, 2015

APPENDIX

Schematic of Lead pipe rig (6 lead sections) from single water source



Shown above are 6 lead sections with a single water source. All are attached to a unistrut framework with casters. Water flows in a single pass through the pipes to waste. The source water can be turned off/on using a timer-controlled solenoid valve.

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Thursday, January 07, 2016 4:54 PM
To: Kaplan, Robert
Cc: Sygo, Jim (DEQ); Michael Glasgow
Subject: Re: EPA Flint Task Force Concerns about excavation

No excavation is taking place at this time. Other testing methods are being utilized to determine the material of lines.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 7, 2016 2:42 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Friday, January 08, 2016 9:25 AM
To: 'Natasha Henderson'
Cc: Sygo, Jim (DEQ); Michael Glasgow
Subject: RE: EPA Flint Task Force Concerns about excavation

Hello Natasha,

Thank you for your response concerning excavation. That's good news that you are using other testing methods. I write with a request for information that will assist the EPA Flint Task Force.

The "Lead in Drinking Water Preliminary Assessment Document" that I forwarded to you in my email yesterday identifies information that the EPA Task Force is requesting in order for us to provide effective advice and assistance. I've copied the needed information below for your convenience. The Preliminary Assessment Document includes for each type of information, a discussion of how the information will be used. I refer you to it for more detail.

- 1) Current inventory of homes with service line information in excel or similar format.
- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.
- 3) Identification of areas (e.g., zip codes, neighborhoods) in Flint with elevated blood lead levels.
- 4) Addresses of homes that have had water service interruptions or street disturbances (e.g., water main breaks, road/sidewalk construction, etc.) within the last year.
- 5) Addresses of currently unoccupied homes.
- 6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

EPA is prepared to provide analytical support for sampling needed to properly assess the progress of the corrosion control treatment optimization through the upcoming transition to the KWA source, as well as training on sampling, risk evaluation and communication on physical disturbances to lead service lines, and reoccupation of unoccupied homes and re-establishment of water service following water shut-offs. The above information will assist the EPA Task Force better assess the ways in which EPA can provide assistance and support to the City of Flint in the effort to restore safe drinking water to the citizens of Flint.

Should you have any questions, please feel free to contact me.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827

Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Thursday, January 07, 2016 4:54 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: EPA Flint Task Force Concerns about excavation

No excavation is taking place at this time. Other testing methods are being utilized to determine the material of lines.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 7, 2016 2:42 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Monday, January 11, 2016 8:57 AM
To: Kaplan, Robert
Subject: Fwd: Lead Line Identification

Hello Bob,

I have placed two calls to you to ensure that you are aware that the City would appreciate any type of assistance you can offer to test lines. This would definitely be appreciated and help with the goal of the City to identify lead lines.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

----- Forwarded message -----

From: Michael Glasgow <mglasgow@cityofflint.com>
Date: Fri, Jan 8, 2016 at 6:19 PM
Subject: Lead Line Identification
To: Natasha Henderson <nhenderson@cityofflint.com>

Natasha,

I spoke with Darren Lytle from the EPA today. He informed me that they are ready and willing to help out with testing of samples to determine the type of service line. They will develop a protocol for sampling and conduct the testing in their EPA lab at no cost to us. He said that you would just need to contact Bob Kaplan to ask for assistance with this matter. This could help us determine the location of many more lead service lines.

Have a good weekend, and thanks again for having my back with the DEQ today.

Mike Glasgow
 Utilities Administrator
 City of Flint
 1101 S. Saginaw St.
 Flint, MI 48502
 (810)766-7135 ext. 2602

Kaplan, Robert

From: Kaplan, Robert
Sent: Monday, January 11, 2016 9:16 AM
To: 'Natasha Henderson'
Subject: RE: Lead Line Identification

Hello Natasha.

I received your voicemail from 15 minutes ago. That's the first call I've received from you.

We will be happy to assist. I'd like to set up a call ASAP to discuss what you need. What time works for you today?

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Monday, January 11, 2016 8:57 AM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Fwd: Lead Line Identification

Hello Bob,

I have placed two calls to you to ensure that you are aware that the City would appreciate any type of assistance you can offer to test lines. This would definitely be appreciated and help with the goal of the City to identify lead lines.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

----- Forwarded message -----

From: Michael Glasgow <mglasgow@cityofflint.com>
Date: Fri, Jan 8, 2016 at 6:19 PM
Subject: Lead Line Identification
To: Natasha Henderson <nhenderson@cityofflint.com>

Natasha,

I spoke with Darren Lytle from the EPA today. He informed me that they are ready and willing to help out with testing of samples to determine the type of service line. They will develop a protocol for sampling and conduct the testing in their EPA lab at no cost to us. He said that you would just need to contact Bob Kaplan to ask for assistance with this matter. This could help us determine the location of many more lead service lines.

Have a good weekend, and thanks again for having my back with the DEQ today.

--

Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Monday, January 11, 2016 1:33 PM
To: Kaplan, Robert
Subject: SKM_C554e15122114140.pdf
Attachments: SKM_C554e15122114140.pdf

Per conversation.

Thanks,

Natasha L. Henderson, City Administrator
1101 S. Saginaw St.
Flint, MI
Email: nhenderson@cityofflint.com
Phone: (810) 237-2057
www.cityofflint.com

Exhibit 'B'
Cost Opinion For
Proposed Watermain Extension
GCDC-WWS

Lewis Road WM Extension

11/19/2015

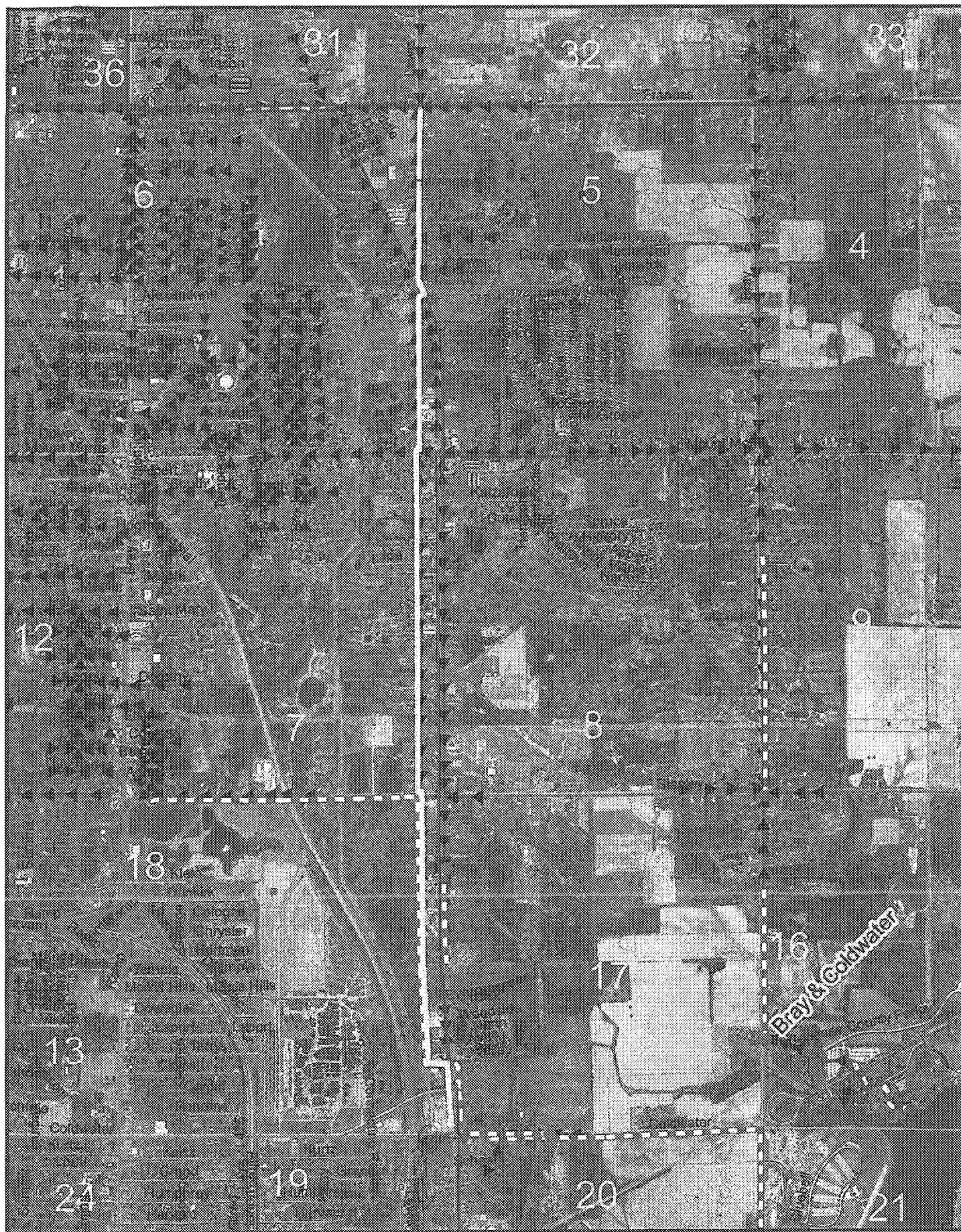
<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Total</u>
Connect to Existing WM	2	EA	\$ 10,000.00	\$ 20,000.00
24" DI Watermain & Appurtenances, Open Cut	16,400	LF	\$ 160.00	\$ 2,624,000.00
24" DI Watermain & Appurtenances, Bore & Jack	550	LF	\$ 550.00	\$ 302,500.00
Meter Pit	1	EA	\$ 230,000.00	\$ 230,000.00
24" Gate Valve & Box	4	EA	\$ 10,000.00	\$ 40,000.00
Driveway Restoration (Concrete & Asphalt)	1,400	SY	\$ 55.00	\$ 77,000.00
Driveway Restoration (Gravel)	2,900	SY	\$ 15.00	\$ 43,500.00
Culverts (12" and 18")	2,300	LF	\$ 36.00	\$ 82,800.00
Fire Hydrant Assembly	32	EA	\$ 4,500.00	\$ 144,000.00
Trench Restoration	17,800	LF	\$ 10.00	\$ 178,000.00
Audio-Video Electrography	1	LS	\$ 6,000.00	\$ 6,000.00
Soil Erosion and Sedimentation Control	1	LS	\$ 50,000.00	\$ 50,000.00
SUBTOTAL				\$ 3,797,800.00
ACCELERATED CONSTRUCTION (20%)				\$ 759,560.00
CONSTRUCTION CONTINGENCY (15%)				\$ 569,670.00
DESIGN CONTINGENCY (15%)				\$ 569,670.00
ENGINEERING (9%)				\$ 341,802.00
BOND/LEGAL (3%)				\$ 113,934.00
INSPECTION (5%)				\$ 189,890.00
TOTAL				\$ 6,342,326.00

NOTE: This estimate does not include the following items:

*Watermain Tap-In Fees	*Traffic Control	*Utility Conflicts
*Clearing & Grubbing	*Geotechnical Reports	*Protective Pipe Lining
*Land Acquisition	*Aerial Mapping	*Road Repair
*Wetland Mitigation	*Any Permits Required by Local, State, Federal, or Private Agencies	

NOTE: No field or survey work was performed in creating this estimate.

M:KWA Lewis Road WM Extension\2015 11-18 Lewis Road WM extension.xls



24" Lewis Road
Watermain

1 inch = 2,000 feet



11/19/15

Kaplan, Robert

From: Kaplan, Robert
Sent: Monday, January 11, 2016 2:16 PM
To: 'Natasha Henderson'
Subject: RE: Lead Line Identification

Hello Natasha,

Good to talk to you today. As we've discussed, we are pleased to assist. I will put our ORD experts directly in touch with Mike G. and your contractor to provide assistance on identifying lead lines (without physical disturbance).

Thanks, talk to you soon.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Monday, January 11, 2016 8:57 AM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Subject: Fwd: Lead Line Identification

Hello Bob,

I have placed two calls to you to ensure that you are aware that the City would appreciate any type of assistance you can offer to test lines. This would definitely be appreciated and help with the goal of the City to identify lead lines.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

----- Forwarded message -----

From: Michael Glasgow <mglasgow@cityofflint.com>
Date: Fri, Jan 8, 2016 at 6:19 PM
Subject: Lead Line Identification
To: Natasha Henderson <nhenderson@cityofflint.com>

Natasha,

I spoke with Darren Lytle from the EPA today. He informed me that they are ready and willing to help out with testing of samples to determine the type of service line. They will develop a protocol for sampling and conduct the testing in their EPA lab at no cost to us. He said that you would just need to contact Bob Kaplan to ask for assistance with this matter. This could help us determine the location of many more lead service lines.

Have a good weekend, and thanks again for having my back with the DEQ today.

--

Mike Glasgow
Utilities Administrator
City of Flint
1101 S. Saginaw St.
Flint, MI 48502
(810)766-7135 ext. 2602

Kaplan, Robert

From: Kaplan, Robert
Sent: Tuesday, January 19, 2016 2:10 PM
To: 'Natasha Henderson'
Cc: Sygo, Jim (DEQ)
Subject: Request for information from last week

Hello Natasha,

Last week I sent the information request in the message below, and I have not heard back from you. I realize that you and your staff are busy dealing with a very difficult situation, and I am sensitive to the fact that this request may seem like just one more thing you are being asked to do. However, I need to stress the importance of us working together and the need we have to see the information your staff are using and/or generating so that we can offer informed assistance.

While all of the information we have identified is needed, it is particularly important that we get as soon as possible existing drinking water quality data we described in #s 2) and 6) of our request:

- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.
- 6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

I will call you early next week to find out how we can best get access to this information. I would also like to discuss how we can set up a data sharing process so that we get new data on an ongoing basis as they are generated.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Tuesday, January 19, 2016 3:29 PM
To: Kaplan, Robert; Mike Glasgow
Cc: Sygo, Jim (DEQ)
Subject: Re: Request for information from last week

Hello Mike,

Do you have this information readily available at this point?

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 19, 2016 3:09 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Last week I sent the information request in the message below, and I have not heard back from you. I realize that you and your staff are busy dealing with a very difficult situation, and I am sensitive to the fact that this request may seem like just one more thing you are being asked to do. However, I need to stress the importance of us working together and the need we have to see the information your staff are using and/or generating so that we can offer informed assistance.

While all of the information we have identified is needed, it is particularly important that we get as soon as possible existing drinking water quality data we described in #s 2) and 6) of our request:

2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.

6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

I will call you early next week to find out how we can best get access to this information. I would also like to discuss how we can set up a data sharing process so that we get new data on an ongoing basis as they are generated.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Tuesday, January 19, 2016 3:31 PM
To: Kaplan, Robert; Mike Glasgow
Cc: Sygo, Jim (DEQ)
Subject: Re: Request for information from last week

FYI-I have not located an email with this request in my email inbox prior to today.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Tue, Jan 19, 2016 at 4:28 PM, Natasha Henderson <nhenderson@cityofflint.com> wrote:

Hello Mike,

Do you have this information readily available at this point?

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 19, 2016 3:09 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

Last week I sent the information request in the message below, and I have not heard back from you. I realize that you and your staff are busy dealing with a very difficult situation, and I am sensitive to the fact that this request may seem like just one more thing you are being asked to do. However, I need to stress the importance of us working together and the need we have to see the information your staff are using and/or generating so that we can offer informed assistance.

While all of the information we have identified is needed, it is particularly important that we get as soon as possible existing drinking water quality data we described in #s 2) and 6) of our request:

- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.
- 6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

I will call you early next week to find out how we can best get access to this information. I would also like to discuss how we can set up a data sharing process so that we get new data on an ongoing basis as they are generated.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Tuesday, January 19, 2016 3:38 PM
To: 'Natasha Henderson'
Cc: Sygo, Jim (DEQ)
Subject: FW: EPA Flint Task Force Concerns about excavation

Here is the email I referenced earlier today. It was sent on Friday, Jan. 8.

I know there are lots of emails, and you are incredibly busy with the ongoing response. Thanks, Natasha. Please call me if there are questions.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Kaplan, Robert
Sent: Friday, January 08, 2016 9:25 AM
To: 'Natasha Henderson' <nhenderson@cityofflint.com>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>
Subject: RE: EPA Flint Task Force Concerns about excavation

Hello Natasha,

Thank you for your response concerning excavation. That's good news that you are using other testing methods. I write with a request for information that will assist the EPA Flint Task Force.

The "Lead in Drinking Water Preliminary Assessment Document" that I forwarded to you in my email yesterday identifies information that the EPA Task Force is requesting in order for us to provide effective advice and assistance. I've copied the needed information below for your convenience. The Preliminary Assessment Document includes for each type of information, a discussion of how the information will be used. I refer you to it for more detail.

- 1) Current inventory of homes with service line information in excel or similar format.
- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.
- 3) Identification of areas (e.g., zip codes, neighborhoods) in Flint with elevated blood lead levels.
- 4) Addresses of homes that have had water service interruptions or street disturbances (e.g., water main breaks, road/sidewalk construction, etc.) within the last year.
- 5) Addresses of currently unoccupied homes.
- 6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate,

chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

EPA is prepared to provide analytical support for sampling needed to properly assess the progress of the corrosion control treatment optimization through the upcoming transition to the KWA source, as well as training on sampling, risk evaluation and communication on physical disturbances to lead service lines, and reoccupation of unoccupied homes and re-establishment of water service following water shut-offs. The above information will assist the EPA Task Force better assess the ways in which EPA can provide assistance and support to the City of Flint in the effort to restore safe drinking water to the citizens of Flint.

Should you have any questions, please feel free to contact me.

- Bob

Robert Kaplan
Deputy Regional Administrator
U.S. EPA Region 5
Phone: (312) 886-1499
Cell: (312) 515-9827
Fax: (312) 692-2075

From: Natasha Henderson [<mailto:nhenderson@cityofflint.com>]
Sent: Thursday, January 07, 2016 4:54 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: EPA Flint Task Force Concerns about excavation

No excavation is taking place at this time. Other testing methods are being utilized to determine the material of lines.

Thanks,

Natasha L. Henderson, City Administrator
1101 S. Saginaw St.
Flint, MI
Email: nhenderson@cityofflint.com
Phone: (810) 237-2057
www.cityofflint.com

On Jan 7, 2016 2:42 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published

studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Tuesday, January 19, 2016 3:53 PM
To: Kaplan, Robert
Cc: Sygo, Jim (DEQ)
Subject: Re: FW: EPA Flint Task Force Concerns about excavation

Hello Bob,

Thanks for re-sending. This information will take some time to collect, as all of the requested information is not readily available, especially with the limited staff and declaration demands.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Tue, Jan 19, 2016 at 4:37 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Here is the email I referenced earlier today. It was sent on Friday, Jan. 8.

I know there are lots of emails, and you are incredibly busy with the ongoing response. Thanks, Natasha. Please call me if there are questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Kaplan, Robert
Sent: Friday, January 08, 2016 9:25 AM
To: 'Natasha Henderson' <nhenderson@cityofflint.com>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>
Subject: RE: EPA Flint Task Force Concerns about excavation

Hello Natasha,

Thank you for your response concerning excavation. That's good news that you are using other testing methods. I write with a request for information that will assist the EPA Flint Task Force.

The "Lead in Drinking Water Preliminary Assessment Document" that I forwarded to you in my email yesterday identifies information that the EPA Task Force is requesting in order for us to provide effective advice and assistance. I've copied the needed information below for your convenience. The Preliminary Assessment Document includes for each type of information, a discussion of how the information will be used. I refer you to it for more detail.

- 1) Current inventory of homes with service line information in excel or similar format.
- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.
- 3) Identification of areas (e.g., zip codes, neighborhoods) in Flint with elevated blood lead levels.
- 4) Addresses of homes that have had water service interruptions or street disturbances (e.g., water main breaks, road/sidewalk construction, etc.) within the last year.
- 5) Addresses of currently unoccupied homes.

6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

EPA is prepared to provide analytical support for sampling needed to properly assess the progress of the corrosion control treatment optimization through the upcoming transition to the KWA source, as well as training on sampling, risk evaluation and communication on physical disturbances to lead service lines, and reoccupation of unoccupied homes and re-establishment of water service following water shut-offs. The above information will assist the EPA Task Force better assess the ways in which EPA can provide assistance and support to the City of Flint in the effort to restore safe drinking water to the citizens of Flint.

Should you have any questions, please feel free to contact me.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]

Sent: Thursday, January 07, 2016 4:54 PM

To: Kaplan, Robert <kaplan.robert@epa.gov>

Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>

Subject: Re: EPA Flint Task Force Concerns about excavation

No excavation is taking place at this time. Other testing methods are being utilized to determine the material of lines.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 7, 2016 2:42 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Kaplan, Robert

From: Kaplan, Robert
Sent: Tuesday, January 19, 2016 3:55 PM
To: 'Natasha Henderson'
Cc: Sygo, Jim (DEQ)
Subject: RE: FW: EPA Flint Task Force Concerns about excavation

Natasha, understood. We attempted to prioritize in the message today. Please let me know if we can assist.

- Bob

Robert Kaplan
 Deputy Regional Administrator
 U.S. EPA Region 5
 Phone: (312) 886-1499
 Cell: (312) 515-9827
 Fax: (312) 692-2075

From: Natasha Henderson [mailto:nhenderson@cityofflint.com]
Sent: Tuesday, January 19, 2016 3:53 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>
Subject: Re: FW: EPA Flint Task Force Concerns about excavation

Hello Bob,

Thanks for re-sending. This information will take some time to collect, as all of the requested information is not readily available, especially with the limited staff and declaration demands.

Thanks,

Natasha L. Henderson, City Administrator
City of Flint, Michigan
 1101 S. Saginaw St.
 Flint, MI 48502
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Tue, Jan 19, 2016 at 4:37 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Here is the email I referenced earlier today. It was sent on Friday, Jan. 8.

I know there are lots of emails, and you are incredibly busy with the ongoing response. Thanks, Natasha. Please call me if there are questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Kaplan, Robert

Sent: Friday, January 08, 2016 9:25 AM

To: 'Natasha Henderson' <nhenderson@cityofflint.com>

Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>

Subject: RE: EPA Flint Task Force Concerns about excavation

Hello Natasha,

Thank you for your response concerning excavation. That's good news that you are using other testing methods. I write with a request for information that will assist the EPA Flint Task Force.

The "Lead in Drinking Water Preliminary Assessment Document" that I forwarded to you in my email yesterday identifies information that the EPA Task Force is requesting in order for us to provide effective advice and assistance. I've copied the needed information below for your convenience. The Preliminary Assessment Document includes for each type of information, a discussion of how the information will be used. I refer you to it for more detail.

- 1) Current inventory of homes with service line information in excel or similar format.
- 2) All lead in water testing results for City of Flint, including those not used for Lead and Copper Rule compliance.

- 3) Identification of areas (e.g., zip codes, neighborhoods) in Flint with elevated blood lead levels.
- 4) Addresses of homes that have had water service interruptions or street disturbances (e.g., water main breaks, road/sidewalk construction, etc.) within the last year.
- 5) Addresses of currently unoccupied homes.
- 6) Identification of the pressure zones and location of each of the water quality parameter locations (addresses) within each pressure zone used for water quality parameter measurements (pH, alkalinity, orthophosphate, chlorine, total Coliform) in the distribution system, along with copies of the water quality parameter analytical results for past 4 rounds of monitoring.

EPA is prepared to provide analytical support for sampling needed to properly assess the progress of the corrosion control treatment optimization through the upcoming transition to the KWA source, as well as training on sampling, risk evaluation and communication on physical disturbances to lead service lines, and reoccupation of unoccupied homes and re-establishment of water service following water shut-offs. The above information will assist the EPA Task Force better assess the ways in which EPA can provide assistance and support to the City of Flint in the effort to restore safe drinking water to the citizens of Flint.

Should you have any questions, please feel free to contact me.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

From: Natasha Henderson [<mailto:nhenderson@cityofflint.com>]
Sent: Thursday, January 07, 2016 4:54 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: Sygo, Jim (DEQ) <SygoJ@michigan.gov>; Michael Glasgow <mglasgow@cityofflint.com>
Subject: Re: EPA Flint Task Force Concerns about excavation

No excavation is taking place at this time. Other testing methods are being utilized to determine the material of lines.

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 7, 2016 2:42 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Hello Natasha,

The EPA Flint Task Force is concerned about Flint's plan to excavate to verify the presence of lead service lines at 150 sites. The plan is set out in the City of Flint Incident Action Plan (IAP) (page 3 under 'Information Collection').

The first concern relates to public health. As noted in EPA's "Final Report - High Lead at Three Residences in Flint, Michigan," sent to you on November 4, 2015, and consistent with published studies, the physical disturbance of a lead service line or the non-lead portion of a service line downstream of the lead portion can result in the prolonged release of scale and sediment with high lead content. This high lead release can result in a significantly increased lead exposure risk to residents. It also appears from recent press reports that many Flint residents are not using the water filters provided to them. The potential exists for exposure to high lead levels should excavation occur at homes, especially where filters are not being utilized.

The second concern relates to sampling for compliance with the Lead and Copper Rule. The EPA Flint Task Force does not recommend using recently excavated and physically disturbed sites for collection of Lead and Copper Rule compliance samples. The sampling results from these sites would be more indicative of the recent physical disturbance, rather than effectiveness of the corrosion control treatment, as intended by the Lead and Copper Rule.

The EPA Flint Task Force developed a "Lead in Drinking Water Preliminary Assessment" document, which was shared with Michigan DEQ in draft on November 25, 2015, and which has subsequently been revised in response to comments from Michigan DEQ (revised draft

attached). The Preliminary Assessment document recommends a non-invasive method for identification of lead service lines (see Section 5.1). This non-invasive method would not result in physical disturbances to the lead service lines. It would also be more cost effective than the proposed excavation work.

The EPA Flint Task Force therefore strongly recommends that the EPA Flint Task Force approach for lead service line verification be utilized in lieu of that which is outlined in the Flint IAP. Please call me if there are any questions.

- Bob

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075

Marshall, Marjorie

From: Natasha Henderson <nhenderson@cityofflint.com>
Sent: Thursday, January 21, 2016 7:22 AM
To: Kaplan, Robert
Subject: Re: Chlorine residual issue

Thanks-

Thanks,

Natasha L. Henderson, City Administrator
 1101 S. Saginaw St.
 Flint, MI
 Email: nhenderson@cityofflint.com
 Phone: (810) 237-2057
www.cityofflint.com

On Jan 20, 2016 6:06 PM, "Kaplan, Robert" <kaplan.robert@epa.gov> wrote:

Jim, Natasha,

I wanted to bring an issue to your urgent attention. It's not a Task Force "recommendation" yet because we do not have all the information. Rather, it's a concern based data we reviewed on chlorine residual levels from various points in the distribution system. We are concerned about low chlorine residual levels shown in some samples.

Task Force members are scheduled to discuss this matter on a conference call 1/21/2016 with Mike Glasgow from the Flint Drinking Water Plant. Task Force members will ascertain what if any actions the City has taken to address the low chlorine residual results, and identify what options are available to the City to increase the chlorine dosage into the system to maintain adequate chlorine residual levels. Task Force members will also discuss other information that may be available to the City about the characteristics of the water in the distribution system that might impact chlorine residuals. The Task Force will offer recommendations as appropriate to the City for adjustments and improvements to address low chlorine residual levels and expects that the City will implement actions to ensure chlorine residual levels are maintained at adequate levels.

- Bob

Cc: Tim Henry

Robert Kaplan

Deputy Regional Administrator

U.S. EPA Region 5

Phone: (312) 886-1499

Cell: (312) 515-9827

Fax: (312) 692-2075